

2100 406-GPS Personal Locator Beacon Technical Specification

Frequency:	121.5MHz, 243MHz and 406.028MHz. User defined VHF and UHF frequencies may be pre-programmed
Modulation 121/243MHz:	Downward swept tone of at least 700Hz within the range 1.6KHz to 300Hz with a sweep rate of 2-3 Hz. Modulation depth >85% Voice modulation typically 30%
Modulation 406MHz:	In accordance with Cospas/Sarsat T.100
Power Output 121/243MHz:	Nominally 100mW peak with leveling loop to maintain this over temperature and to end of battery life
Power Output 406MHz:	5W \pm 2dB
Battery:	<ol style="list-style-type: none">1. Lithium Manganese Dioxide for Class 2 operation (-20°C) providing greater than 48 hours operation and greater than 5 years shelf life.2. Lithium Sulphur Dioxide for Class 1 operation (-40°C) providing greater than 48 hours operation and greater than 5 years shelf life.3. Optional rechargeable battery for training purposes only, providing approximately 8 hours operation and 500 charge cycles.
Voice Operation: (Class 2 operation only)	121.5/243 MHz or on user selectable VHF/UHF frequencies with timeout and receiver volume high/low control.
Receiver VHF/UHF:	Receive frequency user selectable on VHF/UHF. Better than -75dBm, 80%, 1000Hz modulated for 60mW audio output.
Signal to Noise:	S+N/N ratio better than 6dB for -75dBm with 30%, 1000Hz modulation
GPS Receiver:	16 channels
GPS Acquisition:	With a clear view of the skies, cold start is typically <42 seconds
Beacon Activation:	Automatic, Manual and Salt Water.
SelfTest/BIT:	121.5/243 transmission, 406 transmission, Data burst decode and key check, power supply voltage and current during 406 burst, GPS engine and micro controller status, remaining battery life and PLL lock check
Confidence Check:	Audio and visual indications when operated, separate indication once GPS lock is acquired
Environmental:	Class 1, -40 to +55°C operating (Lithium Dioxide battery) and Class 2, -20 to +55°C (Lithium Manganese Dioxide battery). Waterproof to 10 meters. Designed to withstand ejection from fast jet and relevant conditions of STANAG 7007 and DEF STAN 00-35
Dimensions:	84mm x 149mm x 32mm
Weight:	560g nominal including battery
Colour:	Signal yellow, NATO green, others available on request
Approval Number:	Cospas/Sarsat TAC 147

*The Company reserves the right to change specifications without notice
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Fernau 2100 406-GPS Personal Locator Beacon



Location Innovation

FERNAU

Fernau 2100

406-GPS Personal Locator Beacon

The Fernau 2100 406-GPS Personal Locator Search and Rescue Beacon is a multi function 3 frequency search and rescue beacon operating on Cospas/Sarsat 406MHz alerting frequency with homing transmissions on 121.5MHz and 243MHz.

The 2100 can be supplied with a 2 way speech capability on VHF and UHF, or in a beacon only configuration. All versions of the beacon incorporate embedded GPS. A separate GPS antenna is provided to ensure the GPS fix is obtained as early as possible. The 2100 is fully compatible with the majority of Search and Rescue systems and is fully Class I Cospas/Sarsat approved.

The 2100 is designed primarily for the military user and is compatible with all standard Life Jackets. The construction comprises an aluminium casting with a battery attached to the base. The battery provides a mission duration of more than 48 hours and has an unused shelf life in temperate conditions in excess of 5 years.

The 2100 is simple to operate and may be activated automatically via ejection seat harness, manually, or through salt water immersion. Once activated, the beacon transmits a 406MHz alerting signal in accordance with Cospas/Sarsat, the beacon also transmits a homing signal simultaneously on 121.5MHz and 243MHz. This homing signal is fully compliant with the requirements of STANAG 7007.

The 2100 incorporates an embedded 16 channel GPS receiver which operates when the beacon is activated. The beacon latitude and longitude co-ordinates derived by the GPS receiver are transmitted as part of the 406MHz message, providing the Rescue Co-ordination Centre with precise beacon position information.



2100 PLB.



2100 self test and activation LED's.



Automatic antenna and GPS patch mounted on life jacket.



2100 self test and PTT switch.



Photograph by: Sgt Jack Pritchard; © Crown Copyright, image from www.photos.mod.uk.

The Country Code and Beacon Identity are user programmable together with operational bands through an infra red (I/R) port. A robust code with error detection is used to ensure the beacon is not falsely programmed.

During operation the 2100 provides an audible and visual confidence check. The beacon is also fitted with a comprehensive Self Test function which provides a rapid visual indication of its status to the user.

An optional Cospas/Sarsat approved antenna mount is available. This provides automatic deployment of the antenna when mounted on a suitable life jacket.

The 2100 can be programmed to allow the GPS co-ordinates to be transmitted on either the beacon distress frequencies or on a user defined frequency. The data burst is decoded by the handheld 2110 PLB Data Decoder/Digital Homer which provides the SAR aircraft with precise distance and bearing information for one or more beacons.



2110 Data Decoder/Digital Homer.